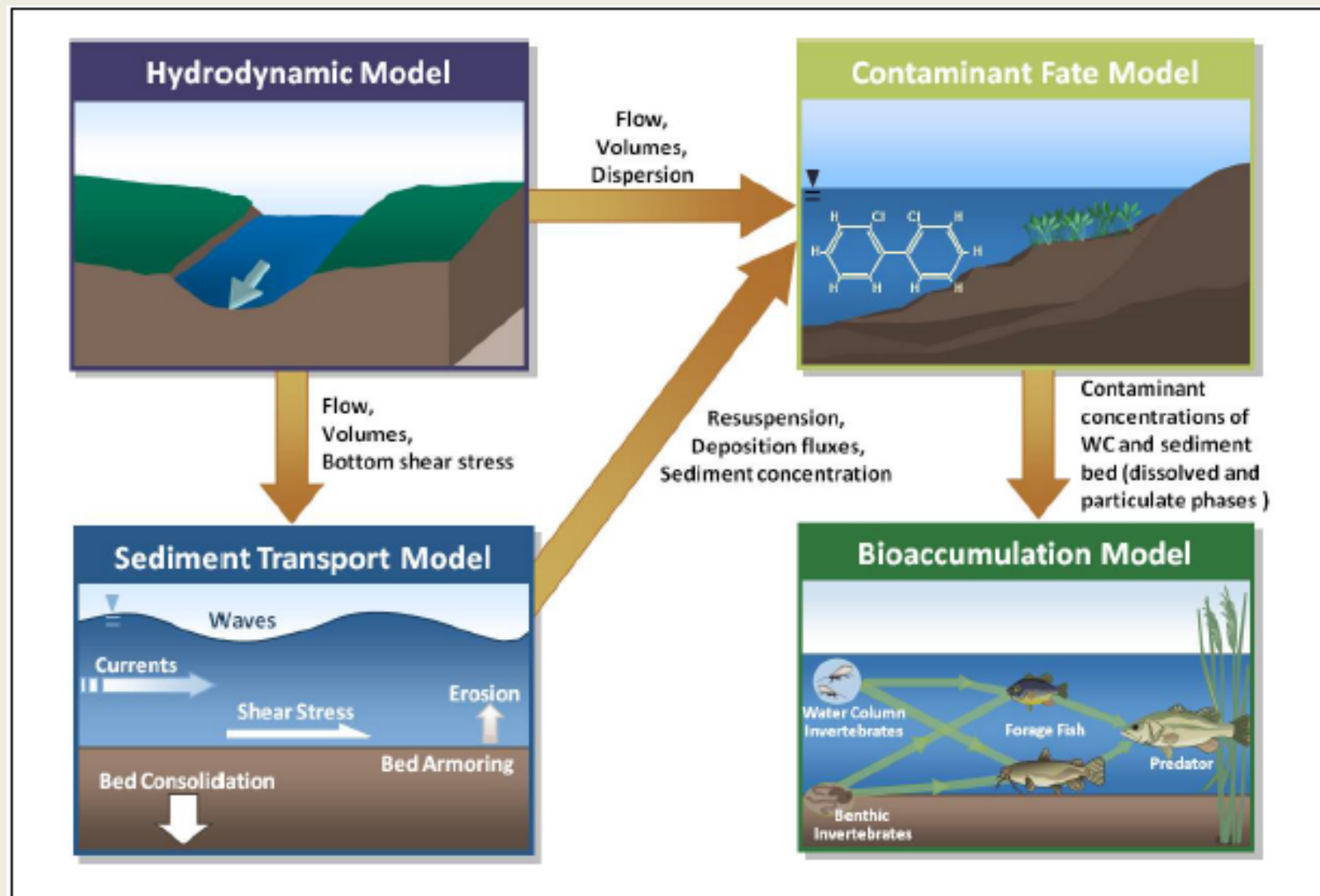# Model Components

Figure 2.1-1
Portland Harbor RI/FS
Draft Feasibility Study Report
Generalized Model Framework and Model Linkages

DO NOT QUOTE OR CITE
This document is currently under review by US EPA
and its federal, state, and tribal partners, and is subject
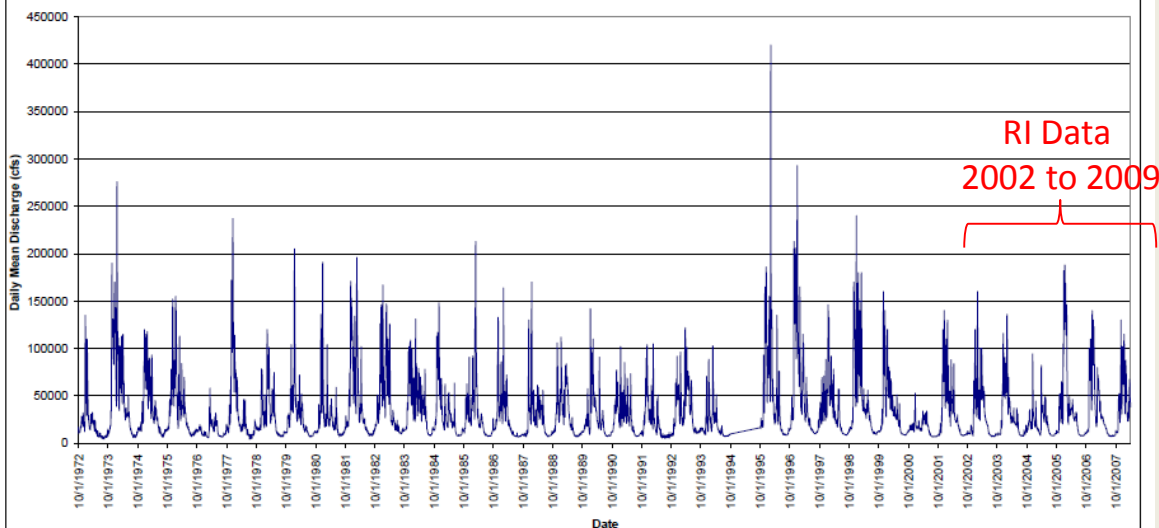to change in whole or in part

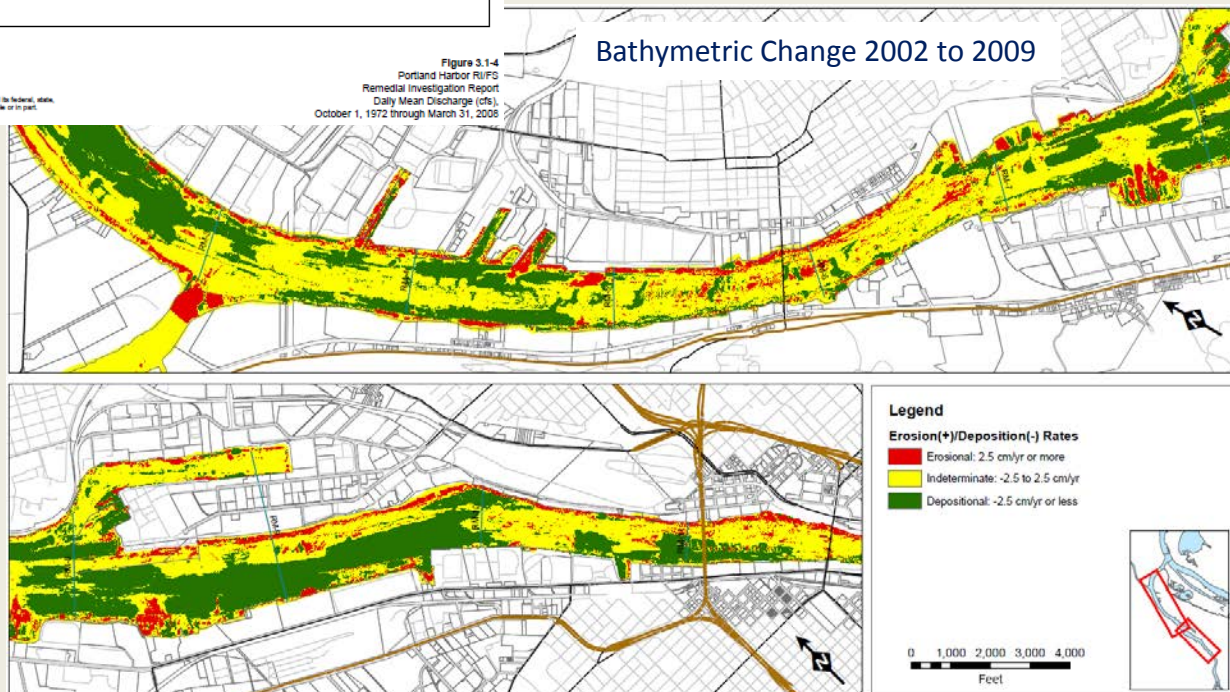# Contaminant Fate and Transport Processes

Figure 2.2-1
Portland Harbor RI/FS
Draft Feasibility Study Report
Processes Simulated by the Fate
and Transport Model

LWG
LOWER WILLAMETTE GROUP
ANCHOR
QEA
DEQ
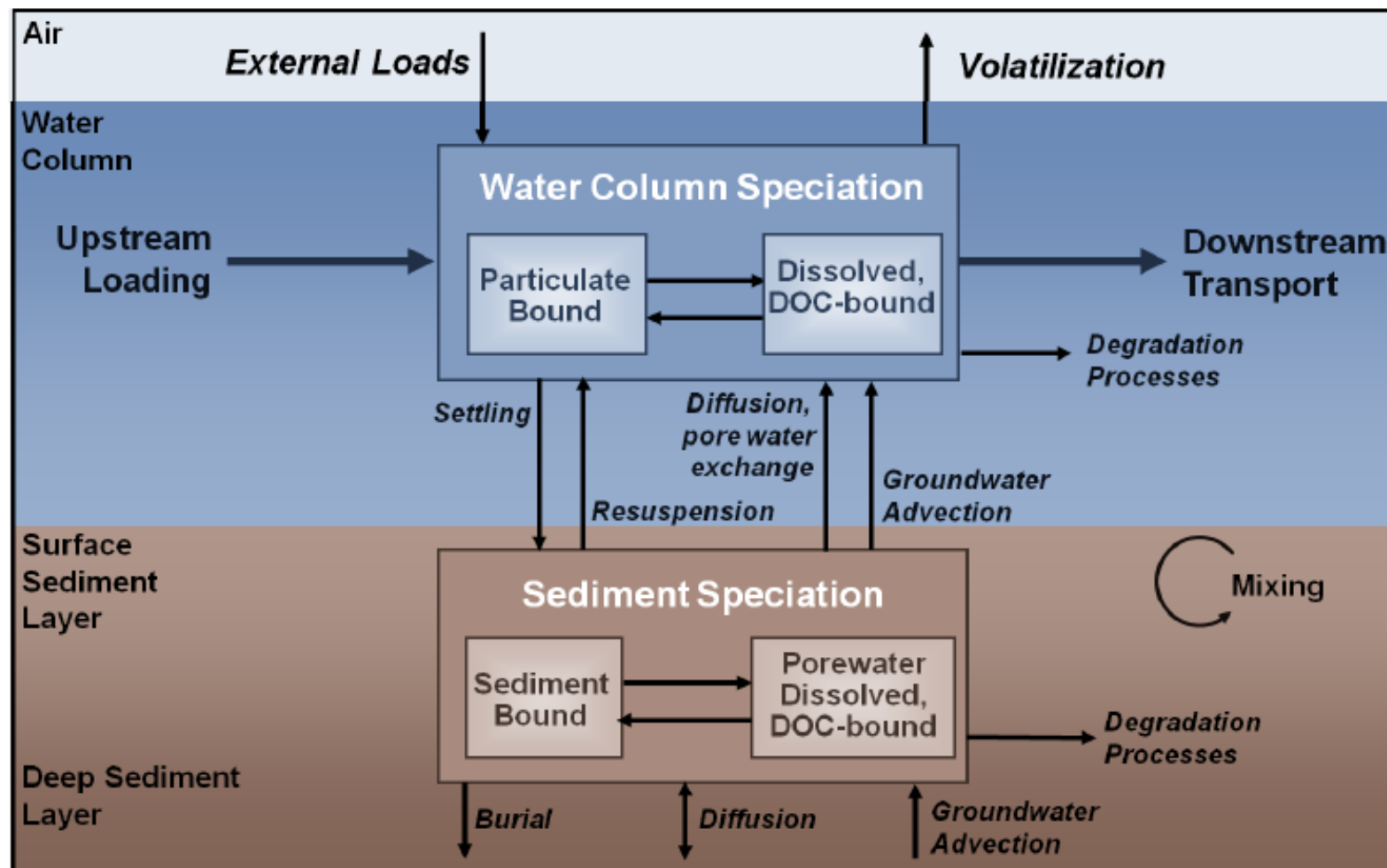
Modeling Challenge – Highly Dynamic System

Daily Mean Discharge (cfs) 1972 to 2008

RI Data
2002 to 2009

Video of 1997 Flood
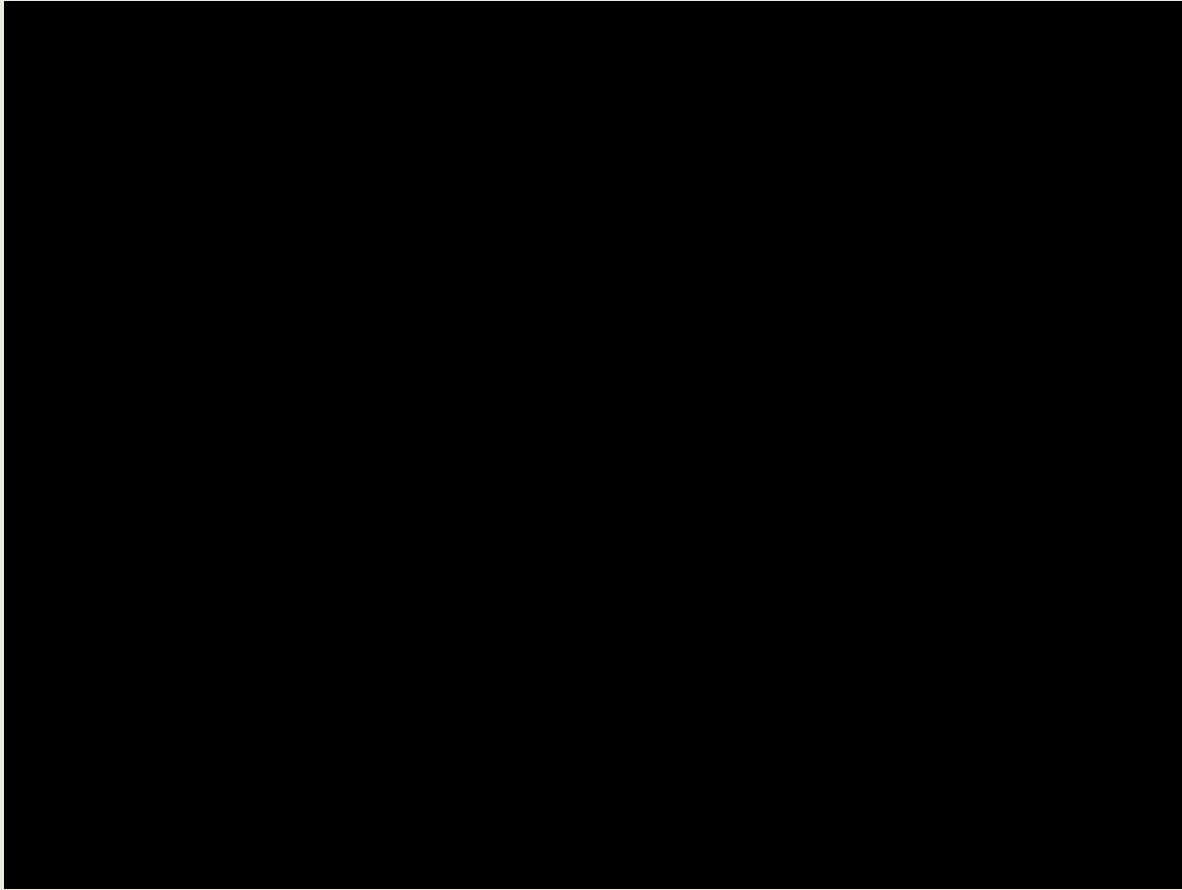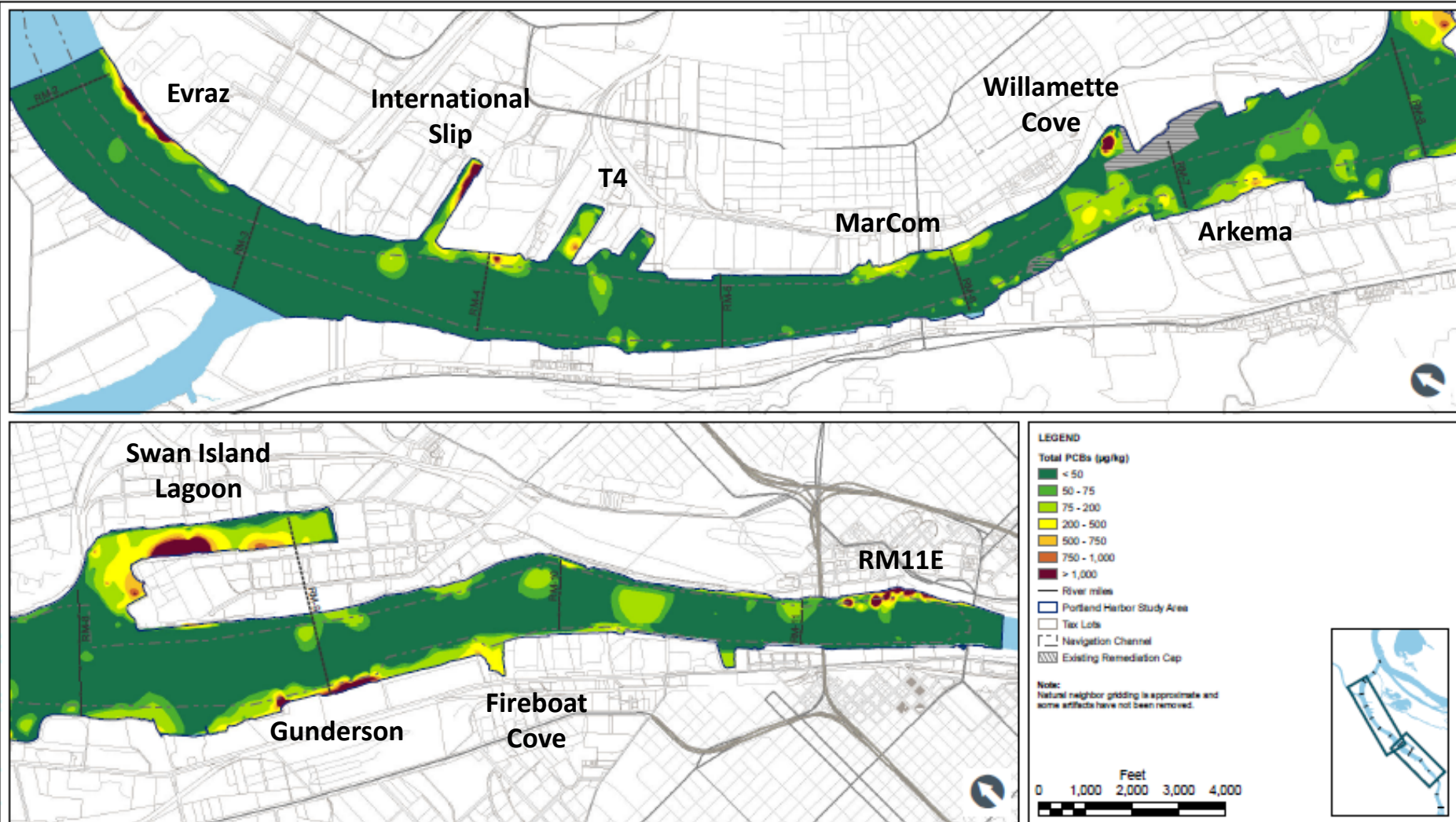www.youtube.com/watch?v=1AGSFFOSfz0

Bathymetric Change 2002 to 2009

Legend
Erosion(+)/Deposition(-) Rates
Erosional: 2.5 cm/yr or more
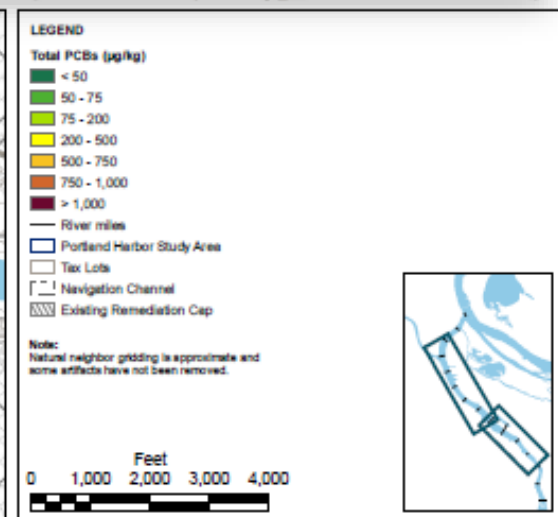Indeterminate: -2.5 to 2.5 cm/yr
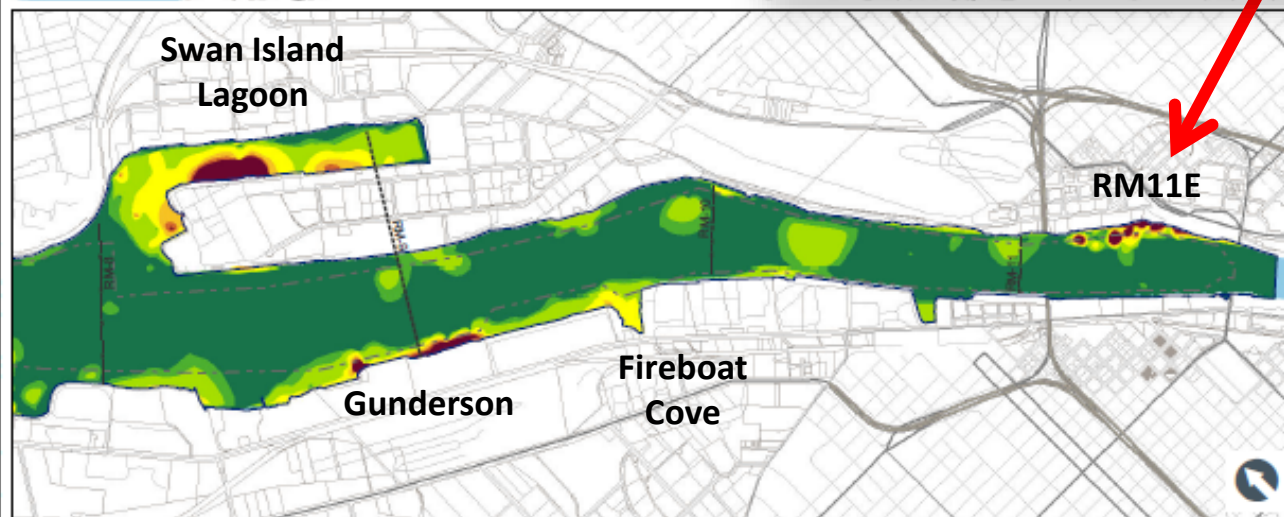Depositional: -2.5 cm/yr or less
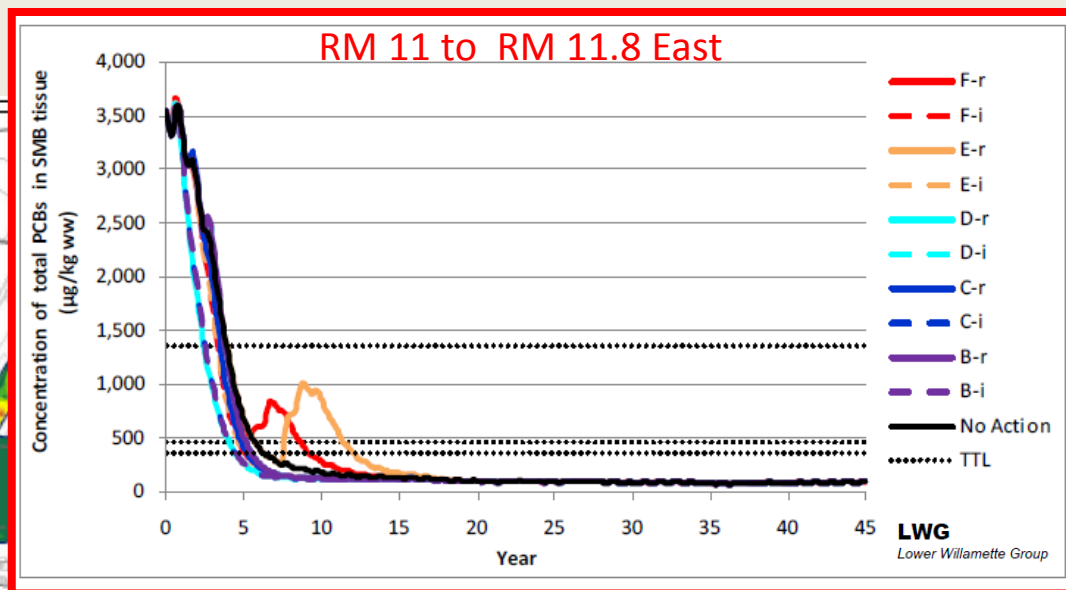
November 18, 2015

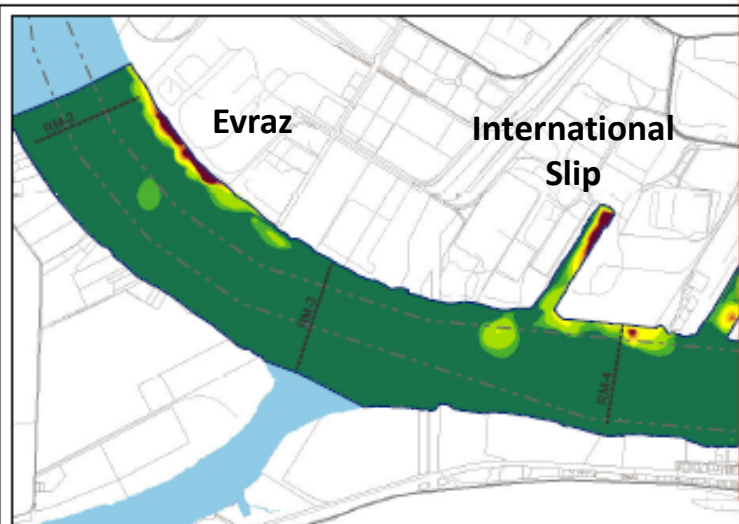# Portland, Oregon 1996 Flood

Modeling Hot Spot (e.g., PCBs)

RM11E Area Model Results – Full recovery < 10 years with No Action

RM 11 to RM 11.8 East

RM 9 to RM10 West

Willamette Cove

Com

Arkema

Swan Island Lagoon

RM11E

Gunderson

Fireboat Cove

LEGEND
Total PCBs (µg/kg)
- < 50
- 50 - 75
- 75 - 200
- 200 - 500
- 500 - 750
- 750 - 1,000
- > 1,000
- River miles
- Portland Harbor Study Area
- Tax Lots
- Navigation Channel
- Existing Remediation Cap

Note:
Natural neighbor gridding is approximate and some artifacts have not been removed.
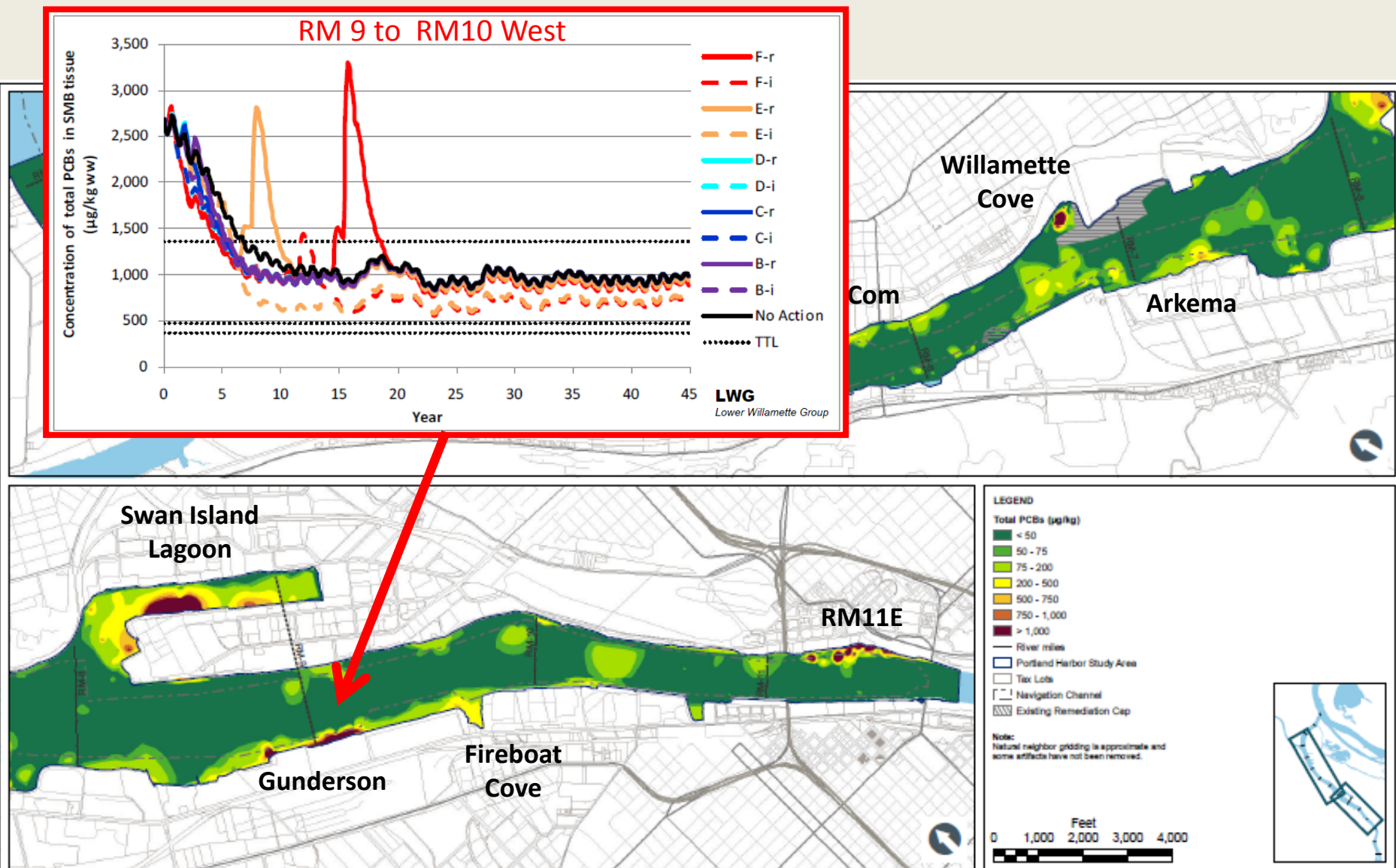
Evraz Area Model Results – Full recovery < 10 years with No Action
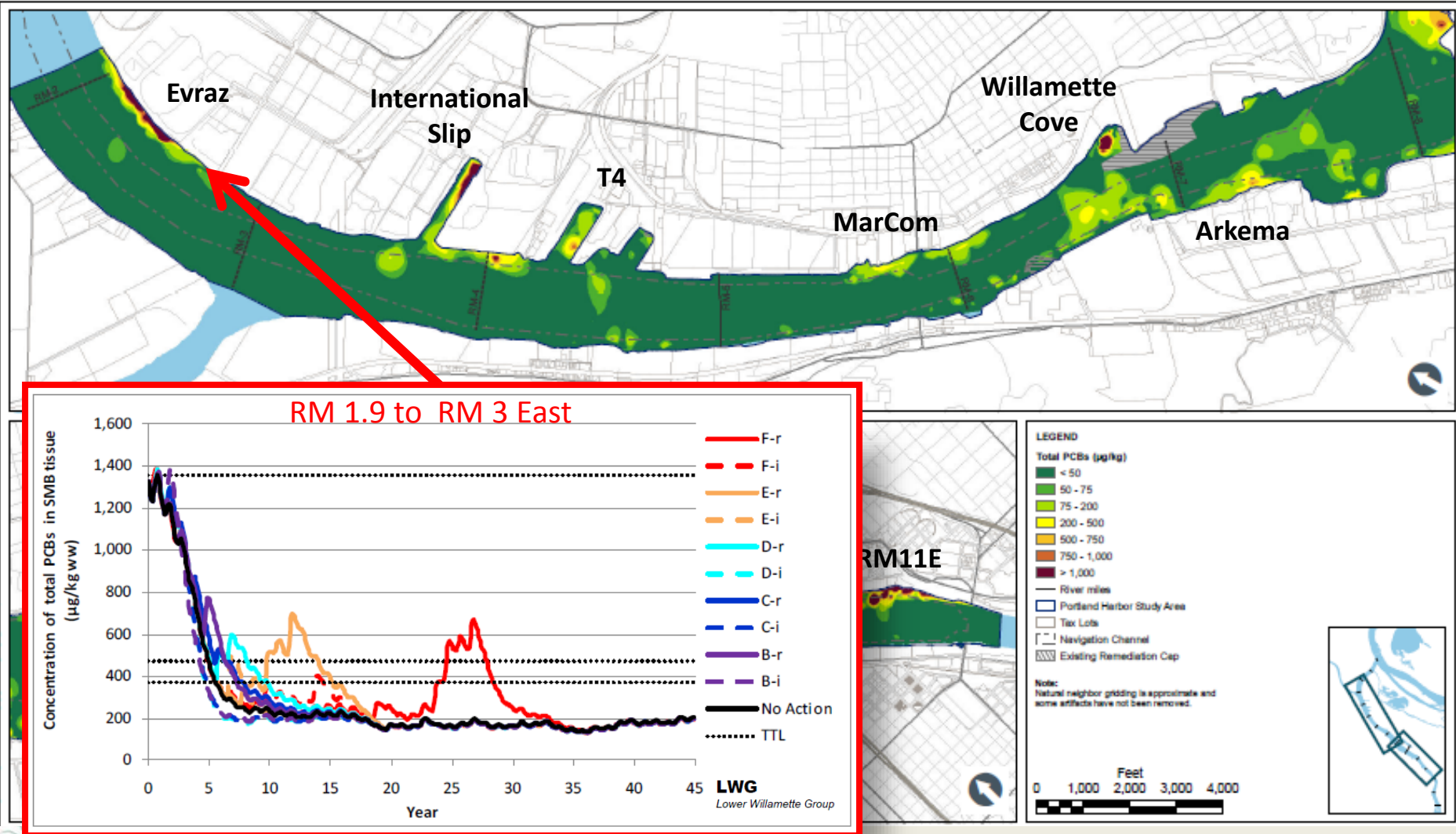
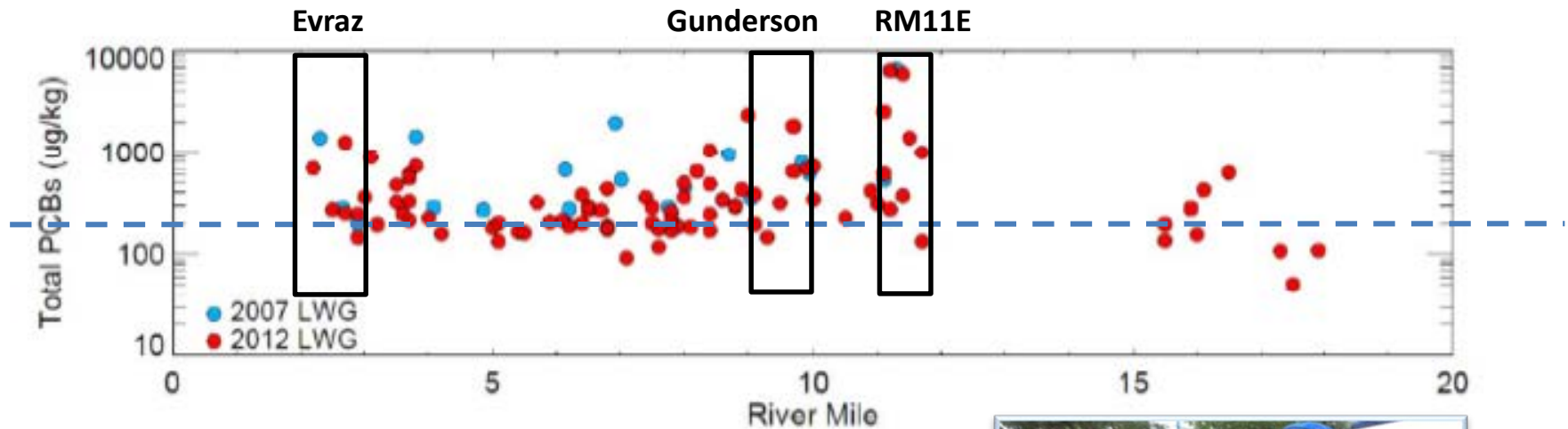# Empirical Data – No Discernible Recovery

2007 and 2012 PCB Concentrations in Whole Smallmouth Bass by River Mile

EPA Draft Feasibility Study Figure 4.1-6

Conclusions and Recommendations

- The LWG's MNR model appears to substantially over predict MNR rates in key hot spot areas

- Conversely, it is unknown whether MNR may be *more effective* than predicted for off-channel areas such as SI Lagoon

- EPA and LWG should work together to solve problems with LWG's MNR model

- If too late for the ROD, model improvements should be factored in to remedial design and some form of adaptive management

Gunderson Marine Barge Launch
www.youtube.com/watch?v=Oa_z-1bQbFA